

INTRODUCTORY LECTURE

ON

MECHANICAL DENTISTRY,

WRITTEN FOR DELIVERY AT THE

SHEFFIELD MEDICAL SCHOOL

AT THE

OPENING OF THE SESSION IN THE YEAR 1864,

BY

MR. GILLAM MOSELEY,

DENTAL SURGEON,

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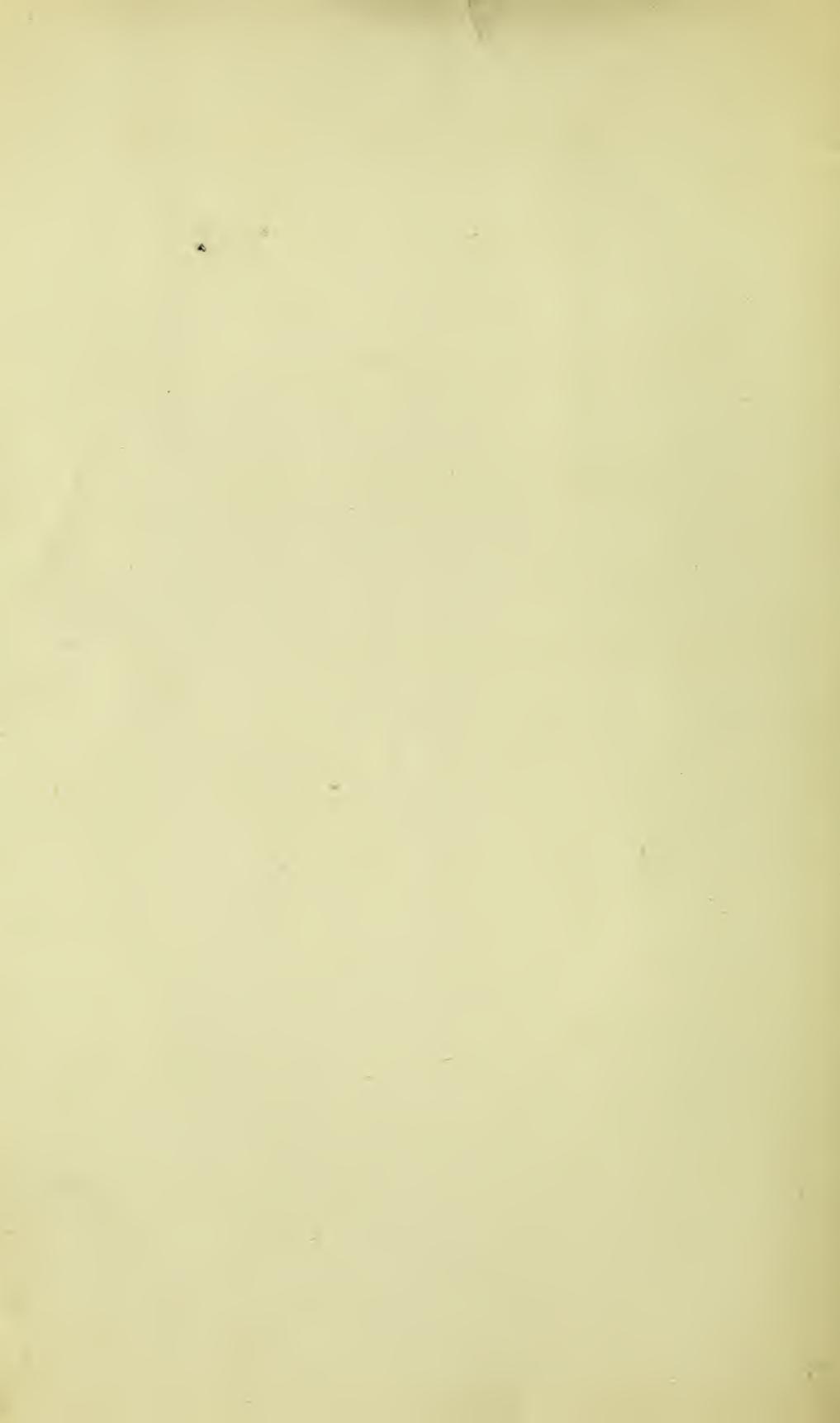
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INTRODUCTORY LECTURE.

GENTLEMEN,

In coming before you this evening, for the first time, I feel that a few introductory observations will naturally be expected from me, and in making them I may well be excused feeling a certain amount of diffidence in entering on this course of Lectures on Mechanical Dentistry which the medical faculty of this institution have honoured me by requesting me to deliver.

I feel sure, however, that due allowance will be made for my inexperience as a lecturer, and every indulgence accorded for any imperfection I may labour under in expressing my ideas to you on this subject.

As an element of medical education, Dental Surgery—interesting and important as it is—has been entirely ignored, and it is only within the last quarter of a century that it has been included in the prescribed curriculum of the London medical schools; but the rapid strides which this subject has made during the above period has raised it to the rank and dignity of a science, and dental surgeons are now appointed to lecture at all the principal medical institutions. This branch of surgery is no longer an exceptional one in the curriculum of professional studies, and I do not know of any circumstance that can more unequivocally testify to its importance than the establishment of a Board of Examiners in Dental Surgery at the College of Surgeons, and the institution of a dental

diploma by that corporation. We are not now assembled at the opening of the sessional course of a recognised school of medicine, but for the formation of a special school of teaching having reference to a distinct branch of practice, the educational requirements of which have been hitherto almost entirely neglected. I will now proceed to give you, as well as I can, a general outline of what has been done in this branch of surgery from the earliest periods to the present time, confining myself as much as possible to the mechanical portion of it.

Of course it will not be possible for me, in the limits of this address, to give you a comprehensive history of the various means adopted in ancient times to relieve suffering humanity by operative surgery ; but the rise and progress of dental science, which, from the earliest period to the present day, has always been a distinct branch of the healing art, may be alluded to with some little instruction and advantage.

I have said that from the earliest period to the present, " dental surgery has been confined to one class of practitioners." We find that it was the practice amongst the Egyptians in the time of Herodotus—2200 years ago—to confine it to one particular caste, who were educated by the State for the purpose of devoting themselves entirely to its study and practice. In fact, the surgeons also of that period devoted themselves to the study of some speciality, for no one was permitted to practise any but his own particular branch or speciality ; some choosing one portion of the human frame, some another—as the head, heart, eyes, or ears. Of the skill of the Egyptian dentists in the early period alluded to by Herodotus but few specimens are recovered ; still we have a few illustrating the means employed at that time—in the museums of Paris, Berlin and Naples, and also a few in England, which can be seen in the museum belonging to a private gentleman

in Liverpool. He has one specimen of their manufacture, consisting of five teeth carved in bone, which are not quite as true to nature as we are now in the habit of seeing, and another of two teeth carved in sycamore wood, which are the more especially interesting from the fact of their being the first that ever have yet been seen or heard of, set in gold.

Several specimens of the art then practised by the mechanical dentist have also been discovered in the mouths of the Egyptian mummies, and amongst other discoveries, Belzoni found, in the Sarcophagi of the Egyptians, numerous artificial teeth which were carved in sycamore wood.

Martial, Catullus, and other early satirical writers constantly allude to the fact of the Romans and Athenians adopting the use of artificial substitutes for the loss of natural teeth by mechanical agency, and I have no doubt that some of the means in use at that early period would be so rude in manufacture, uncomfortable to the wearer, and palpable to every one from their extreme innocence of deception, that they would be a fruitful source of ridicule to the satirists above alluded to. Even in this our day, those who look to artificial rather than to natural charms do not altogether escape the barbed arrows of satiric song: for example—the witty Mrs. Blackwood, in speaking of one of her *most particular friends*, writes:—

“Oh, her head is divine! and those curls
Almost look like her own as they blend;
Then her smile! showing two rows of pearls,
Cartwright fits my particular friends.”

Other instances might be given of satirical remarks and writings; but I will give you one more, where I was unfortunately the subject. A short time ago I received a letter addressed thus:—

“Postman!—

“In buildings that were made in Bath,
 A bachelor his dwelling hath,
 Professionally he draws teeth,
 And thereby often gives relief.
 On Glossop-road, upon a shield,
 Is Moseley, Dentist, of Sheffield.”

This curiously-addressed letter also contained a poetical allusion to our profession, for I found the following lines:—

“He manufactures teeth of bone,
 For those whom fate has left without,
 And makes provision for his own
 By pulling other people's out.”

The use of gold as a means of fastening or preserving the teeth is by no means so novel in its application as many would suppose, for we find that numbers of mummies have been found with pluggings of gold in their carious teeth, and Celsus alludes constantly to the preservation of teeth by the use of gold, and to the fastening of loose teeth or of a fractured jaw by the use of gold wire.

Again, one of the twelve celebrated laws of the ancient Athenians alludes to a practice which was evidently then in common use, for we find in one of the laws which relate solely to the funeral ceremonies of that period, there in this command—“Let no gold be used; but if any has had his teeth fastened with gold let it be lawful to bury or burn that gold with the body,” thus proving the fact before alluded to. I am afraid that I am taking up too much time in dwelling upon these subjects, which, however interesting in themselves, simply convey information as to what has been done; still they may be of use, not only to show the immense strides made in this beautiful art, but to prove that the same means adopted two thousand years ago

for the relief of pain and loss of teeth are resorted to at the present day, though we will hope in a much better and more effective manner.

The instruments used by the ancients for operating on the teeth were not only very clumsy, but, I should think, very ineffectual, and their theory of extraction quite in accordance with the capability of the instruments used; for some of them had one side made quite soft, so as not to break the jaw in the attempt to extract, and to give way if the tooth operated upon proved too refractory to be moved.

In some cases that I have read of, the forceps had one side composed of gold, for the reason before mentioned, and invariably the operator refused to operate without the tooth was first loosened by artificial irritation, mechanical or natural means. The mode of extraction, too, was one that I have never seen practised, though I believe there are plenty of village blacksmiths, who, trusting to their strength of arm and forceps, adopt the same plan at the present day. It consists of placing the patient on the floor, with his head between the knees of the operator, when, trusting to the before-mentioned aids, results often follow which were neither calculated to enhance the professional skill of the operator nor the gratitude of his patient. I can only just allude to the instruments then and now in use, as they form a subject for a future lecture, and will require diagrams and specimens to illustrate them.

Amboise Paré, who has often been called the father of modern surgery, was one of the first who introduced the transplanting of human teeth into the mouths of patients having lost corresponding ones. That practice has been continued up to the present day; but as very serious consequences have resulted from such treatment it is now almost entirely discontinued. He also alludes in some of his numerous and valuable works on surgery, written about the year 1570, to the use of carved

bone and ivory teeth, which were fastened to the firm teeth by the aid of gold or silver wire, silk or flax.

Their mode, too, of keeping the mouth open for any length of time for the removal of swellings, trismus, &c., is primitive, and not to be so much admired on that account as it may be for its efficiency; for we find them using wooden wedges placed firmly between the upper and lower jaw, which were then fastened to the teeth with iron wire. Amongst several others who claimed to be amongst the first mechanical surgeons to adopt a complete set of artificial teeth for the upper and lower jaw is Antoine Neirk, who carved them out of the hippopotamus's bone. When placing in only partial sets of three or four, he adopted the plan of tying them in to the firmer teeth by ligatures of gold, silver, iron, or silk. Even in my own practice I have seen several sets of artificial teeth maintained in the mouth by similar means to those adopted three hundred years ago. A clever German physician, practising in Frankfort about the year 1700, was one of the first to introduce the artificial palate or obturator, which he made not only of bone, but also introduced the use of gold and silver, which were, no doubt, rude in their manufacture, but, as a first step to cure a great deformity, these products was a valuable invention.

The great mechanical difficulties a dental surgeon meets with in his practice are sometimes sources of very grave anxiety to him in his efforts to overcome them, more especially when he sees some patient with great congenital or constitutional defect in the palate bones, which, preventing either proper mastication or articulation, makes life almost insupportable.

These are cases for the exertion of his art, and, if he properly understands it, he will either use some of the means suggested above, or, adopting those of a later period, will soon be gratified by *hearing* the gratitude of

his patient, which could not have been expressed before without such aid.

Heister, the German alluded to, was, as I have said, the first to introduce this great boon to sufferers from cleft palate or congenital fissure of the palate bones, and some of his instructions for the proper administration of a substitute for the perforated or lost palate are followed to the present day, though with such improvements as have been suggested by a better and more scientific knowledge of what is required, better material for the purpose, and better practice in mechanical dentistry.

Considerable improvements were made in the construction and mode of adapting teeth by Beardmore in 1723 ; and Bourdet, also a Frenchman, derived considerable credit for successfully adapting whole sets of teeth for the unfortunate losers, and also for materially improving the instruments then commonly used by dentists ; whilst to Falina is ascribed the introduction of the use of natural teeth, which were then placed on gold palates with wire.

It was not until the year 1776 that one of the most important inventions then discovered in connection with dentistry was promulgated by Monsieur Duchateau, who communicated to the French Academy his discovery of the secret of manufacturing teeth, which were composed of a silicious compound something like porcelean.

They considered it of so much importance that he was at once elected a member of that distinguished body for his invention. He, however, like many other inventors, lost the benefit of his discovery ; for though there is very little doubt that he was the original discoverer, a Monsieur Dubois du Chamant, in the year 1789, not only claimed it as his own, but, after having had a trial in a court of law respecting it, the honour of

the discovery was awarded to him, and royal letters patent given by Louis XVI. Monsieur Chamant then came over to England and commenced practice in London, where he made both teeth and blocks of the porcelain he claimed to have discovered, which, however prized then, will not bear comparison with those made at the present day. It was not until about the year 1820 that single teeth with hollow tubes were manufactured, into which platina, silver, or gold pins were inserted for the purpose of retaining them on gold or silver plates.

These teeth, of course, are not to be compared with those of our own time, for new mineral compounds were rapidly discovered, possessing more transparent properties and being much more natural in appearance; their shape, too, was much more artistic and better adapted for the different methods for which they might be required.

In 1829, a Scotchman, named Hallet, made still greater improvements in the manufacture of artificial teeth; and since then our own manufacturers have become so numerous, the variety of form and colour made by them so great, that I think it would be invidious on my part to name some few to the exclusion of others, and that my best plan will be to bring down to you at my next lecture specimens of each variety, explaining to you the difference in strength, hardness, durability, and peculiarity in form and colour, that characterises each manufacturer. The use of gold palladium, platina, silver, hippopotamus bone, ivory, walrus tooth, and wood, have thus, from the earliest period to which I have before alluded to the present day, been the principal agents used by dentists as a base for artificial teeth. Many other agents, however, have been tried, and many ingenious inventions patented for the purpose of altogether superseding the metals and bone in

use; but most of them have failed in justifying the sanguine hopes of the inventors as well as the profession generally, who have anxiously waited for some material better adapted to the purpose required. One ingenious inventor, named Harrington, thought that he had discovered the requisite material, and kept up the hopes of the profession by his earnest protestations and sanguine views respecting a patent he had taken out for the pressing of tortoise shell into any form required, and using it as a base for artificial teeth; but this failing in several important points, he applied his inventive powers to introduce a new metal only lately discovered, called aluminium. This, also, as far as I have yet heard, is not the decided success anticipated, the reasons for which I may enter into in some future lecture when speaking to you on metals. As the arts and sciences progress new substances are constantly discovered, each of which receives due consideration of its applicability to the improvement of dentistry; thus, aluminium, collodion, hardened India-rubber, gutta percha, have each found their advocates, and are amongst the latest novelties. Hardened India-rubber, or vulcanite, as it is commonly called, was first patented in the year 1843 by a Mr. Hancock, who certainly could not then have formed any idea of the numberless uses to which his invention would be put; but it is not until the year 1855 that we find a Mr. Goodyear patenting the application of vulcanite as a base for artificial teeth: he, however, allowed the patent to lapse, and Mr Putnum, from America, obtained letters patent for an apparatus for hardening India-rubber by steam, which is now generally used.

This valuable addition to our list of materials was eagerly resorted to when it was found to possess so many advantages over most of the materials then used.

Other means were soon discovered for vulcanising by dry heat instead of steam, but as this process has

not been so universally used by the profession I will merely allude to it here, and explain the difference between the two methods at some future lecture when speaking of and illustrating this subject.

The vulcanite was soon found to have a remarkable affinity for uniting with metals, and as such a combination gave it increased strength and beauty, it became at once the most useful and ornamental base for artificial teeth that has ever yet been introduced to the profession.

It is now generally used by almost all practitioners, not only for mounting teeth, but, from its hardness, lightness, smoothness, durability, and impermeability to the fluids of the mouth, for obturators, and the curing of the irregularities of the teeth. The advancement made in the science of dentistry within the last twenty-five years has been most astonishing, not only to the profession, but also to the public ; and no better evidence can be shown of that advancement than the specimens of artificial teeth, obturators, &c., made before that time and those made at the present.

Even now the march of improvement is very rapid in every branch of mechanics, and, with the amount of energy and talent brought to bear on this department of medical practice, we may reasonably look for still greater improvements than have already been made.

The numerous cases of irregularity of the teeth that are now treated successfully by mechanical means I shall illustrate by models of the teeth of patients who have either undergone treatment or who are now doing so, showing the different stages of progress and the result achieved ; and, as there are no two cases exactly alike, the demand made upon the skill and ingenuity of the dentist is sometimes carried to the utmost in his endeavours to rectify what, but for his skill, would be a great and lasting deformity. There is no

case so irregular but what you can greatly improve, and, if properly assisted by his patient, the practitioner need never despair of *entire* success. The means to be adopted for regulating the metal, vulcanite, bone, India-rubber, or silk to be used, the plans that have been adopted by many dentists, and the several plans generally adopted now, I shall explain to you, illustrating by models cases of especial interest or difficulty, when I come before you to speak on this highly interesting branch of dental mechanics.

In any attempt to improve yourselves in art or science, it is of the utmost importance to know not only what others have succeeded in doing, but also what they have failed in doing; and I have no doubt at all that the subject of my lecture, explained as it is now in all the medical schools, will save the student months of fruitless experiment and many consequent failures.

It is fair to infer that if so much has been accomplished without a regular education, still more can be effected with one; the student therefore having derived his information from books, lectures, &c., of what has been discovered long since by others, will start from where his predecessors have had their progress arrested, and thus have his own materially assisted. Many valuable hints may be given by the instructor relative to the immense variety and peculiarity of form observed in the human jaw, and the remedial treatment employed to obviate that peculiarity; but actual practice in the laboratory will be required if he would become an expert in the manipulative art of dental mechanics, and actual practice only will give him that steadiness of hand, readiness of resource, and confidence in himself, so necessary in this branch of surgery, for in no case will he find two patients possessing either the same articulation of the jaws, peculiarity of form, or shape. The

successful practitioner must possess *many* attributes and qualifications, amongst the most prominent of which I would name energy of character, artistic skill, good nerve and *temper*, especially the latter, combined with a love of his profession and a thorough practical knowledge of all branches of mechanics.

It is only a very short time since dentistry was thought to require no higher talent and skill than that of a village blacksmith ; but that time has passed away, for it has now risen to the dignity of a recognised profession, which, to be successfully followed, demands long study and thorough training, with an amount of scientific knowledge and practical skill equal to that of any other profession.

The student having gone through the prescribed curriculum must by no means consider his education finished, for as science advances so must the knowledge and practice of his profession advance with it, and in dental surgery the importance of a regular and systematic study of theoretical and practical instruction, so far as can be afforded here and at other medical schools, cannot be over-estimated, and indeed is now, I am happy to say, absolutely necessary for your education.

You will find an immense number of people who, from their loss of natural teeth, are obliged to have recourse to artificial substitutes : and these they require for many essential reasons, perhaps the most important of which are the proper mastication and insalivation of food, whereby it is prepared for the purpose of digestion and nutrition, better articulation in speaking or singing, and immense improvement in personal appearance.

Any of these reasons are quite sufficient to incite the skilled dental surgeon to use every exertion to make the artificial denture combine all and more than

the qualifications named, and though he may and will now and then meet cases that set his skill at defiance be assured that patience and perseverance, a perfect knowledge of his profession, with determination to succeed, will ere long crown his anxious efforts with success. When we consider the immense importance of having a perfect denture, either artificial or natural, for the proper mastication of food, the effects on the constitution the loss of these organs invariably produce, the improvement in appearance (constitutionally as well as personally), the difference made in the voice and articulation, we cannot help feeling a certain amount of pride in saying that it will be the future lot of us all to contribute in no small degree to the well-being and happiness of society by the practical illustration of our beautiful art. Without its assistance much valuable talent would be lost, for we all know that it is taken advantage of by members of every profession, whether they are heard in the senate, on the stage, at the bar, in the pulpit or the concert-room; and thus we find every inducement so to learn our profession that we may look with pleasure on the good we have done, and hopefully to the good we may accomplish.

I will now just allude to the discriminating power that must necessarily be exercised by a dental surgeon in the practice of his profession, and can assure you it must be of no low order, for if he do not possess discrimination and judgment, combined with good taste, he may so alter the appearance of the patient by placing in artificial substitutes totally unfit in colour, size, form, or capability, as to disfigure what he has attempted to improve. His study, therefore, must be so to conform to nature that the artificial substitutes adjusted will harmonise in colour, form, and general character of the countenance, and, as is very often the case, he has no guide by which

to form an opinion; his own artistic perception, based upon and improved by scientific observation, combined with a knowledge of the peculiar characteristics possessed by different patients having so great a variety in feature, will be required so to imitate what would be natural as not to destroy the general harmony.

Gentlemen — As you will have many opportunities of hearing me again speak on these and kindred subjects, I will not now detain you longer; but in concluding this, my introductory lecture, I do hope and trust that the profession you have chosen may so call forth all your energy and application, that the vista of those subjects, now somewhat dim and obscure by the difficulties that beset them, will soon fade before your more enlightened understandings; and after having devoted your best energies to the ample study of all modern improvements in your art, a full knowledge of the impediments to success, with the most appropriate method of overcoming them, you may go forth at the termination of your curriculum of study with the conviction that nothing has been overlooked on your part which could tend to relieve the agonies of your patients, to avoid the unnecessary torture inflicted by the unskilful application of mechanical art, and to know and feel that by its proper exercise you have saved a vast amount of pain, and so improved and relieved suffering humanity as to know also that you have done a vast amount of good.

October 11th, 1864.

